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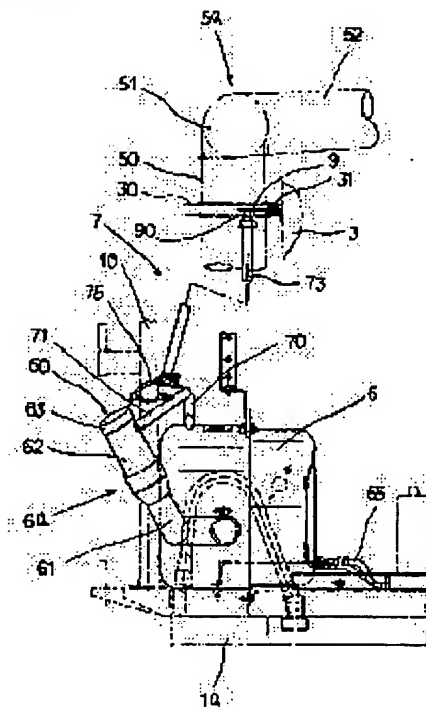
HORIUCHI MICHIO

(54) BREATHER STRUCTURE OF TANK FOR RUNNING WORK MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide the breather structure of a fuel tank for a running work machine capable of well preventing the leakage of fuel during fuel supply work and operation by discharging air inside the fuel tank through an integrated breather pipe.

SOLUTION: A breather structure is such that an engine E mounted on a running work machine is supplied with fuel from a fuel tank 6 having a breather structure 7. The fuel tank 6 of the running machine supplies fuel toward a side of a base machine from a fuel supply port 60 extendingly provided through a fuel supply port cylinder 61. A breather pipe 71 provided on the fuel supply port cylinder 61 side and a breather pipe 70 provided on the fuel tank 6 side are connected by an integrated breather pipe 73 having an upwardly opened air bleeding hole.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the breather structure of the fuel tank which feeds a fuel into the engine carried in transit machines, such as a combined harvester and thresher.

[0002]

[Description of the Prior Art] Conventionally, from on constraint of an airframe space, harvesters (transit machine), such as a combined harvester and thresher which installed the grain threshing machine and the grain tank on the transit airframe, lay the fuel tank for these engines in the middle of the airframe back in the regions of back of a grain threshing machine, and constitute the fuel-supply opening from the 1 side of an airframe possible [supply of a fuel] through a fuel-supply cylinder while they install an engine, for example in the bottom of a driver's seat. And as for the breather structure of performing degassing in a fuel tank, it is common to carry out by establishing a degassing hole directly on the cap closed possible [closing motion of fuel-supply opening].

[0003]

[Problem(s) to be Solved by the Invention] However, the combined harvester and thresher equipped with the breather structure by the above conventional configurations has the problem of a fuel leaking out from the degassing hole of a cap, when a transit airframe runs a slope land or a paddy field and it runs a fuel-supply opening side with the dip position made low.

[0004]

[Means for Solving the Problem] In order to cancel the above-mentioned conventional trouble, breather structure of a fuel tank for transit machines by this invention While feeding a fuel into the 1st from a fuel tank which equipped with breather structure an engine laid in a transit machine In a fuel tank for transit machines which supplies a fuel from fuel-supply opening installed in this fuel tank through a fuel feed hopper cylinder towards the 1 side of an airframe It is characterized by connecting a breather pipe prepared in said fuel feed hopper cylinder side, and a breather pipe prepared in a fuel tank side with a set breather pipe which carried out the opening of the degassing hole to the upper part.

[0005] It is characterized by covering a degassing hole of a set breather pipe to the 2nd by mounting eye which carries out mounting immobilization of this set breather pipe.

[0006]

[Embodiment of the Invention] One operation gestalt of this invention is explained based on a drawing. It is the combined harvester and thresher in which 1 is first shown as an operation gestalt of a transit machine in drawing 1. While installing the driver's seat 4 which constructs across possible [rise and fall of mowing section 2a] ahead of **** (transit airframe) 1a which has the traveller 2 of a crawler type, and is formed in the back right and left on the grain threshing machine 3 with **** cutter (**** processor) 3a, and Engine E Install the grain tank 5 in the back of a driver's seat 4 in the side of this grain threshing machine 3, the grain threshed by this grain threshing machine 3 is made to hold in the grain tank 5, and blowdown auger 5a which discharges the grain held in the back of the grain tank 5 outside the plane is prepared and constituted. and the structure which installs the fuel tank 6 in which the fuel for engine E is held in the back of the grain threshing machine 3 on **** 1a, and mentions the breather structure 7 concerning this invention later in this fuel tank 6 -- with, it has.

[0007] The above-mentioned blowdown auger 5a the same configuration as an ordinary thing In addition, with, traverse-feed RASEN which was installed horizontally in the pars basilaris ossis occipitalis of the grain tank 5 and which is not illustrated, The vertical RASEN cylinder 50 by which forms successively to this traverse-feed RASEN and set-up support is carried out at the posterior wall of stomach of the grain tank 5, Blowdown RASEN by which a relay revolution is carried out refrangible through the relay

section 51 in the upper part of the vertical RASEN cylinder 50 is constituted from a blowdown RASEN cylinder 52 which carries out an inner package. Moreover, operate the

rise-and-fall cylinder (un-illustrating) prepared in the above-mentioned relay section 51, and where lifting rotation of the relay section 51 is carried out at the supporting point, the blowdown RASEN cylinder 52 By making it circle by actuation actuation of a turning drive motor (un-illustrating) in which the vertical RASEN cylinder 50 was installed in the base, blowdown of the grain in the grain tank 5 in a request location outside the plane is enabled from the exhaust port of the blowdown RASEN cylinder 52.

[0008] Next, breather structure 7 grade is explained to a fuel tank 6 and its fuel-supply structure 6a list with reference to drawing 2 - drawing 6. The fuel tank 6 installed in the back of a grain threshing machine 3 on **** 1a While making the fuel easy to have fuel-supply structure 6a which can supply a fuel from the back on the right-hand side of an airframe, to establish the breather structure 7 between the fuel-supply opening 60 of this fuel-supply structure 6a, and a fuel tank 6, and to supply smoothly When an airframe carries out dip transit at the time of a combined-harvester-and-thresher activity, it enables it to prevent fuel leakage exactly. These with the covering 11 attached in various kinds of stanchions 10 and list which are set up from ****1a removable at the vertical RASEN cylinder 50 grade While doing (drawing 1) and a fuel-supply activity simply by covering where only fuel-supply opening 60 portion is exposed, it enables it to prevent contact outside the plane in trespass lists, such as dust.

[0009] Moreover, he is try for the above-mentioned fuel supply structure 6a not to produce a break through of the fuel from this section at the time of airframe dip by prepare possible [the supply cylinder 61 install from the right wall side of a fuel tank 6, and closing motion of the cap (feed hopper lid) 63 which does not have the Ayr **** to the fuel supply opening 60 of the feed hopper cylinder 62 while connect with a stanchion 10 the feed hopper cylinder 62 by which mounting immobilization is carry out].

Moreover, the breather structure 7 is constituted by carrying out mounting immobilization in the mounting eye 9 which prepared the upper part of this set breather pipe 73

above the vertical RASEN cylinder 50 and which is mentioned later while it connects with one set breather pipe 73 the breather pipe 70 prepared in the upper wall of a fuel tank 6, and the breather pipe 71 prepared in the peripheral wall upper part of the feed hopper cylinder 62 through the triradius-like connection pipe 72.

[0010] Moreover, in constituting the above breather structures 7, when the left of an airframe inclines greatly low and runs by preparing in a location higher than the base side of breather pipes 70 and 71, the location of the connection pipe 72 is [the fuel along which carries out the extravasation to the breather pipe 71 side of the feed hopper cylinder 62, and it passes] influx-hard, and makes it the breather pipe 70 side of another side. And as drawing 2 and drawing 6 show, said mounting eye 9 is formed with a wide one-sheet-like board. By leaning the mounting pipe 90 which inserts and connects the upper bed of the set breather pipe 73 with the underside for a while, and carrying out mounting immobilization in one with fixed means, such as welding between mounting eyes 9 -- the degassing hole 91 of areole -- a hole, while he is trying to form, without

requiring dawn processing etc. and this forms the degassing hole 91 simply It enables it to prevent exactly that cover the degassing hole 91 from the upper part, and storm sewage and dust invade in the degassing hole 91 by the wide mounting eye 9.

[0011] In addition, the mounting eye 9 enables it to carry out mounting immobilization of the mounting eye 9 at a low price by small components mark at a height in the example of a graphic display by ***** (ing) the base with the mounting screw 31 of the supporter material 30 which carries out reinforcement support of the vertical RASEN cylinder 50 at a grain threshing machine 3 side. Moreover, the degassing hole 91 may drill a stoma in the set breather pipe 73 directly [near the lower part of a mounting eye 9], without restricting to the above-mentioned mode. Moreover, each breather pipes 70, 71, and 73 have flexibility, and are carrying out the stabilizer by carrying out connection immobilization of the proper place at the stanchion 10 grade currently set up by the near using the clamp members 75, such as a string. 65 is the pars basilaris ossis occipitalis of a fuel tank 6, and the feed tube of the fuel prepared between Engines E.

[0012] Since this invention was constituted as mentioned above, the fuel which removed the cap 63 and was paid from the fuel-supply opening 60 is held in a fuel tank 6 through the feed hopper cylinder 62 and the fuel pipe 61. Since the air in a fuel tank 6 is discharged by the degassing hole 91 of said mounting eye 9 through the set breather pipe 73 from a breather pipe 70 and a breather pipe 71 at the time of this fuel-supply activity, a fuel can be supplied smoothly.

[0013] And if hold a fuel to the limit in a fuel tank 6, cap 63 is closed, Engine E is put into operation and a combined-harvester-and-thresher activity is done, since the inside of a fuel tank 6 leads to the open air through breather pipes 70 and 71 and the set breather pipe 73, it is feeding the fuel to Engine E smoothly, and can continue a combined-harvester-and-thresher activity good.

[0014] When the left of an airframe inclines greatly low and runs according to dip, paddy field conditions, etc. of a field at this time, the fuel which is going to carry out the extravasation from the cap 63 side of the feed hopper cylinder 62 Since it flows to the **** stop **** breather pipe 71 side with the cap 63 which does not have a degassing hole While being able to prevent certainly the nonconformity of leaking out from a cap 63 side like the conventional thing, and soiling the perimeter, internal air bubbles can be promptly discharged from the degassing hole 91 of the set breather pipe 73 through a breather pipe 71.

[0015] moreover, the trouble produced when storm sewage and dust enter into the degassing hole 91 and invade in a fuel tank 6, since the degassing hole 91 has covered the upper part by the wide mounting eye 9 -- an easy configuration -- with, it prevents certainly and there is an advantage of being able to do a combined-harvester-and-thresher activity smoothly.

[0016]

[Effect of the Invention] Since this invention is constituted as explained above, an effect which is indicated below is done so. By having connected the breather pipe prepared in the fuel feed hopper cylinder side, and the breather pipe prepared in the fuel tank side with the set breather pipe which carried out the opening of the degassing hole to the upper part, the air in a fuel tank can be smoothly discharged from a set breather pipe, and fuel feeding activity and operation of an engine can be performed good.

Moreover, since the fuel in a feed hopper cylinder discharges air bubbles from a set breather pipe side with **** stop **** with the cap which does not have a degassing hole when an airframe carries out dip transit, degassing can be performed good, preventing a break through of a fuel certainly.

[0017] And it can simplify installation structure of a degassing hole while it can prevent exactly trespass into fuel tanks, such as storm sewage and dust, since the degassing hole covered the set breather pipe by the mounting eye which carries out mounting immobilization.

CLAIMS

[Claim(s)]

[Claim 1] While feeding a fuel from a fuel tank which equipped with breather structure an engine laid in a transit machine In a fuel tank for transit machines which supplies a fuel from fuel-supply opening installed in this fuel tank through a fuel feed hopper cylinder towards the 1 side of an airframe Breather structure of a fuel tank for transit machines characterized by connecting a breather pipe prepared in said fuel feed hopper cylinder side, and a breather pipe prepared in a fuel tank side with a set breather pipe which carried out the opening of the degassing hole to the upper part.

[Claim 2] It is the breather structure of a fuel tank for transit machines of wrap claim 1 publication at a mounting eye which carries out mounting immobilization of this set breather pipe for a degassing hole of a set breather pipe.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The back perspective diagram of the combined harvester and thresher equipped with this invention.

[Drawing 2] The side elevation of an important section showing the breather structure of the fuel tank of drawing 1 .

[Drawing 3] The plan of drawing 2 .

[Drawing 4] Rear view of drawing 2 .

[Drawing 5] A fuel tank and the decomposition perspective diagram of breather structure.

[Drawing 6] (A) is the plan of a mounting eye. (B) is the side elevation of (A).

[Description of Notations]

1 Combined Harvester and Thresher (Transit Machine)

1a Transit airframe (the base of a set)

3 Grain Threshing Machine

5 Grain Tank

5a Blowdown auger

6 Fuel Tank

6a Fuel-supply structure

7 Breather Structure

9 Mounting Eye

60 Fuel-Supply Opening

61 Fuel-Supply Cylinder

62 Fuel Feed Hopper Cylinder

63 Cap

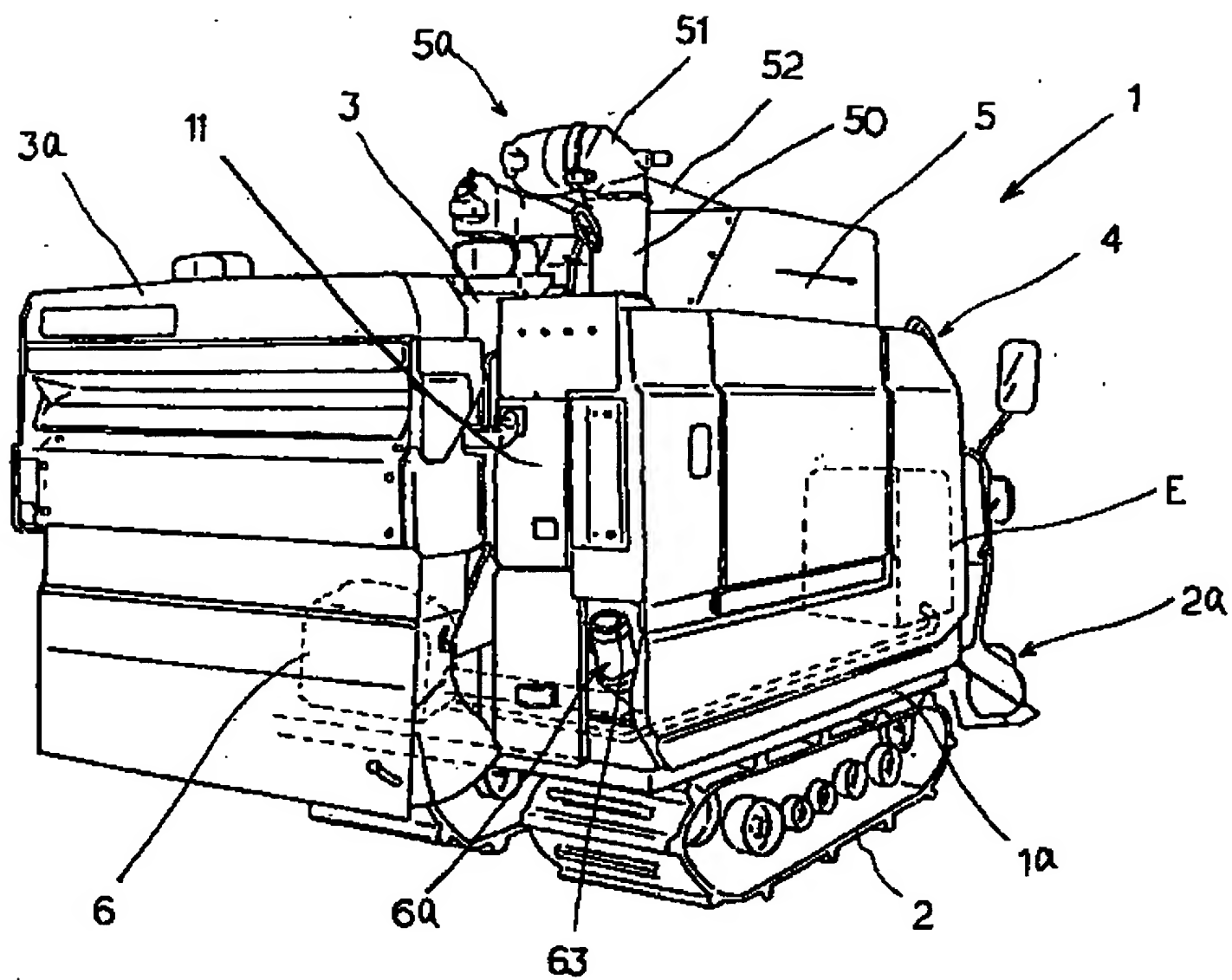
70 71 Breather pipe

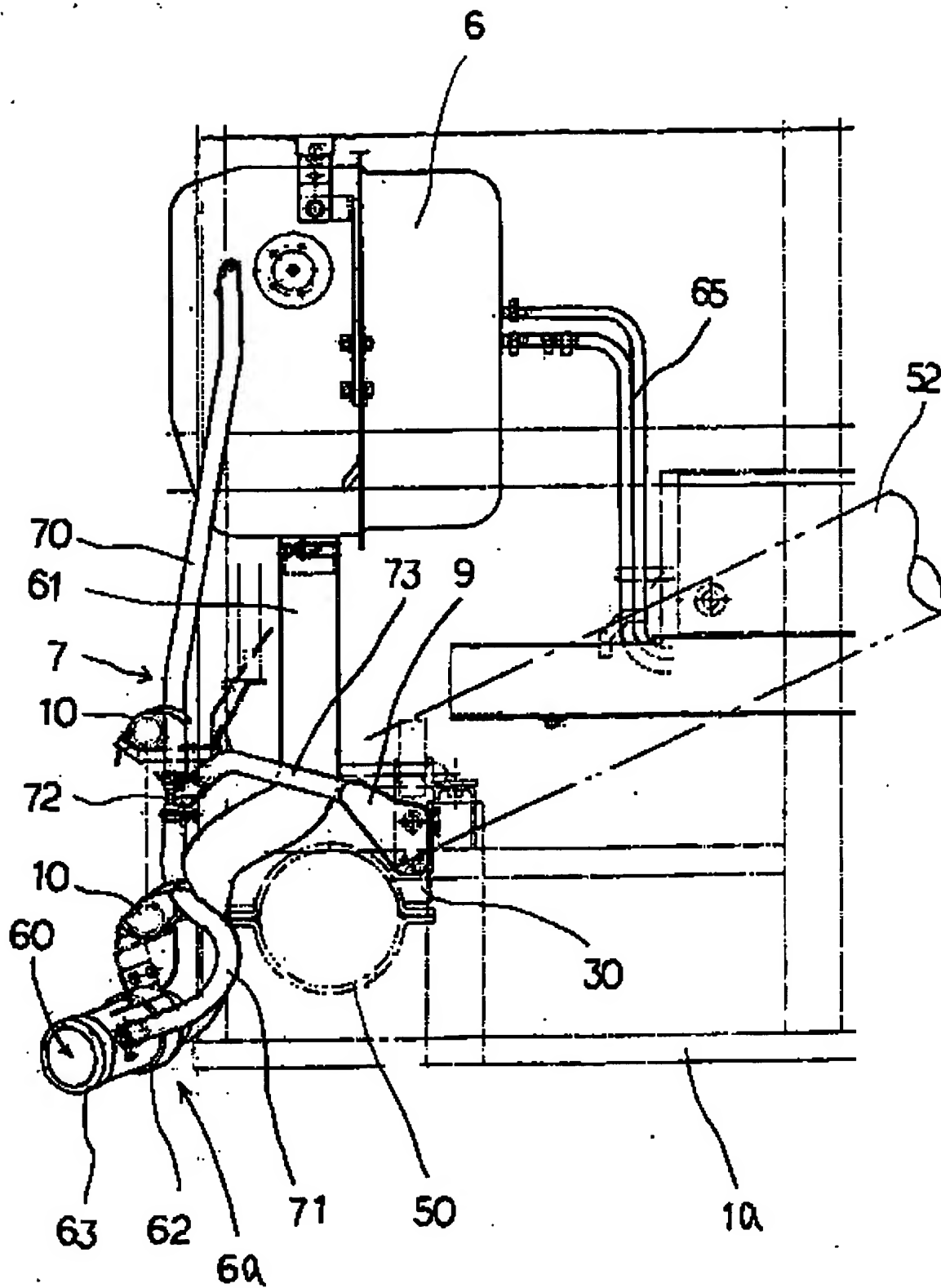
73 Set Breather Pipe

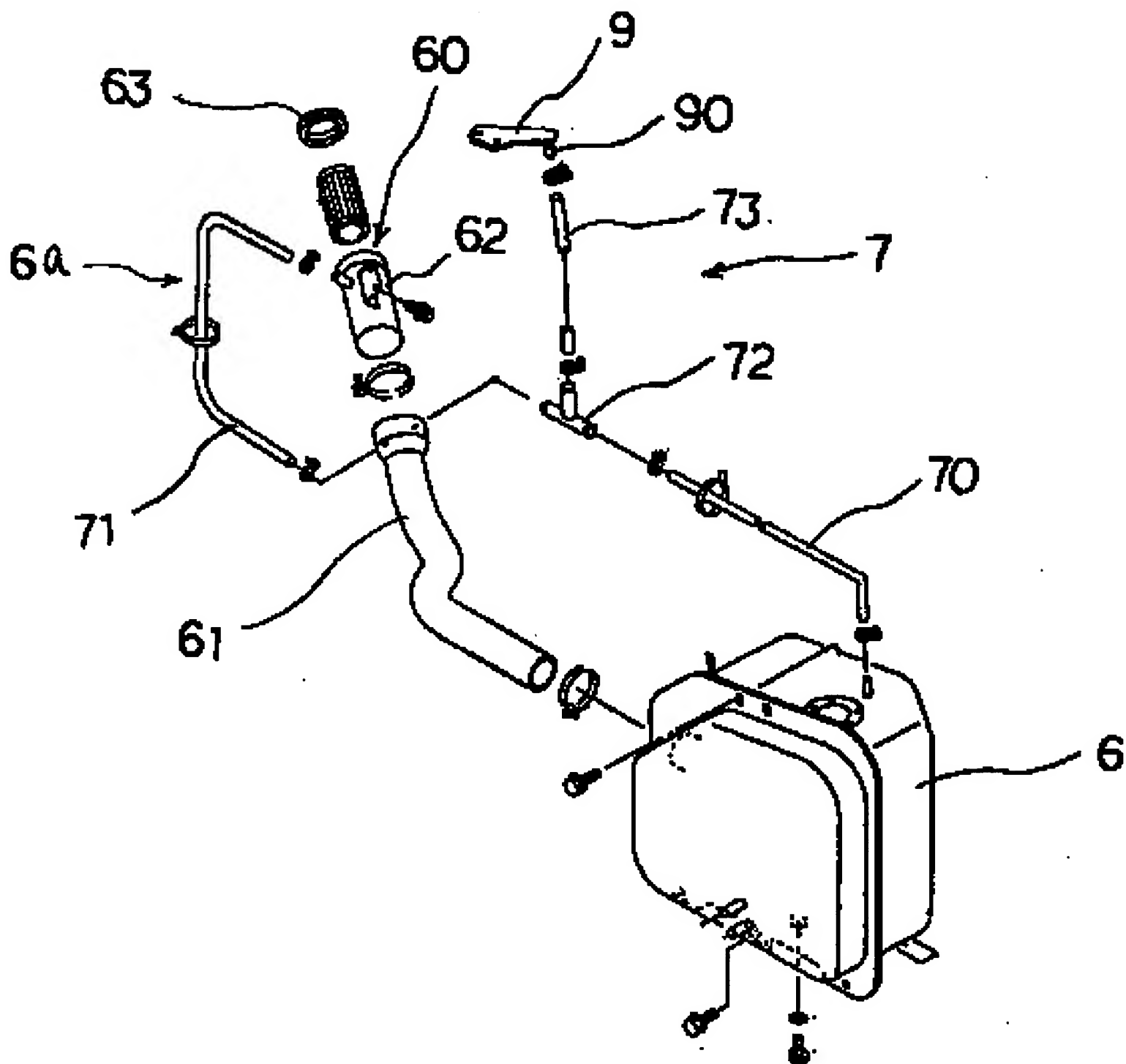
91 Degassing Hole

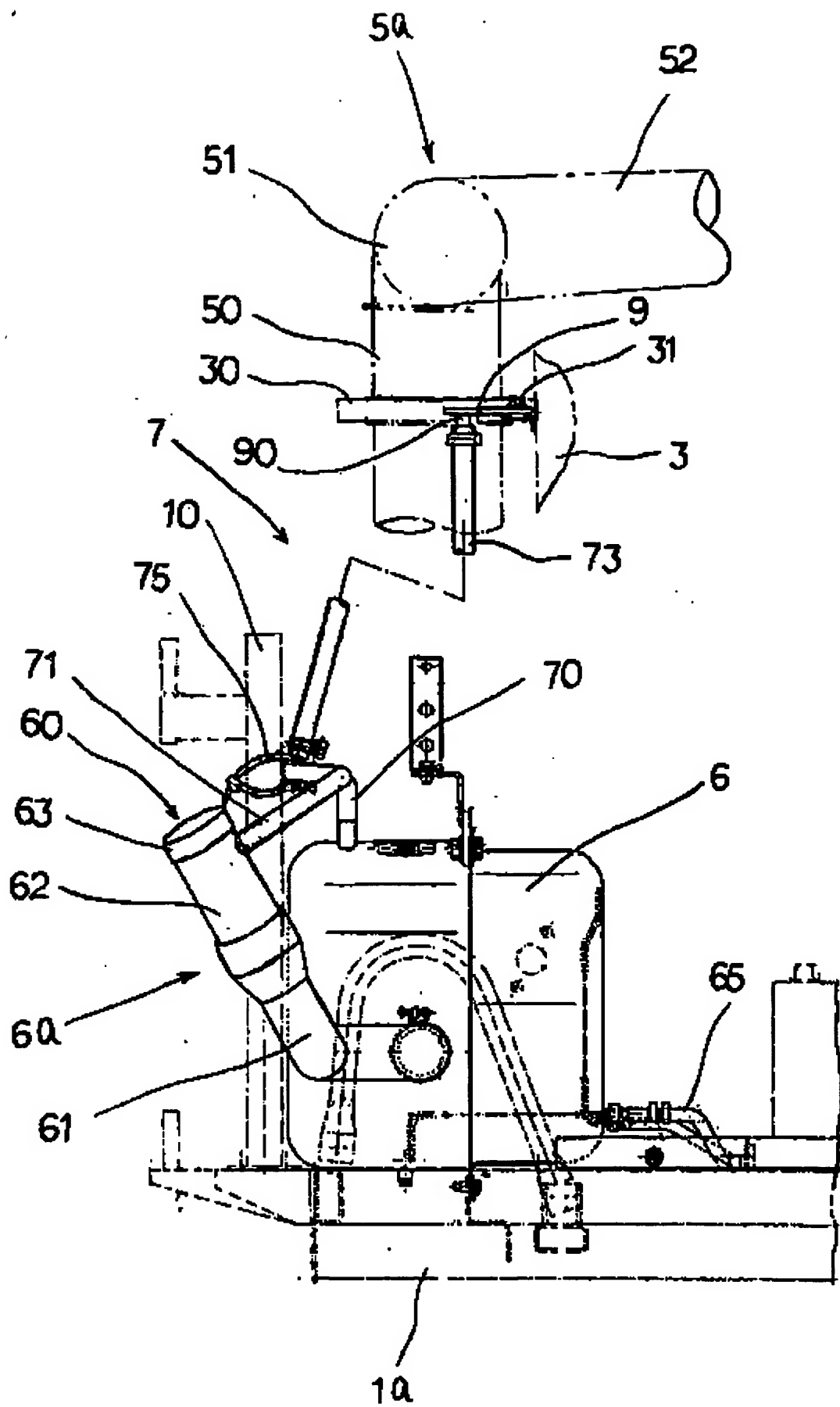
E Engine

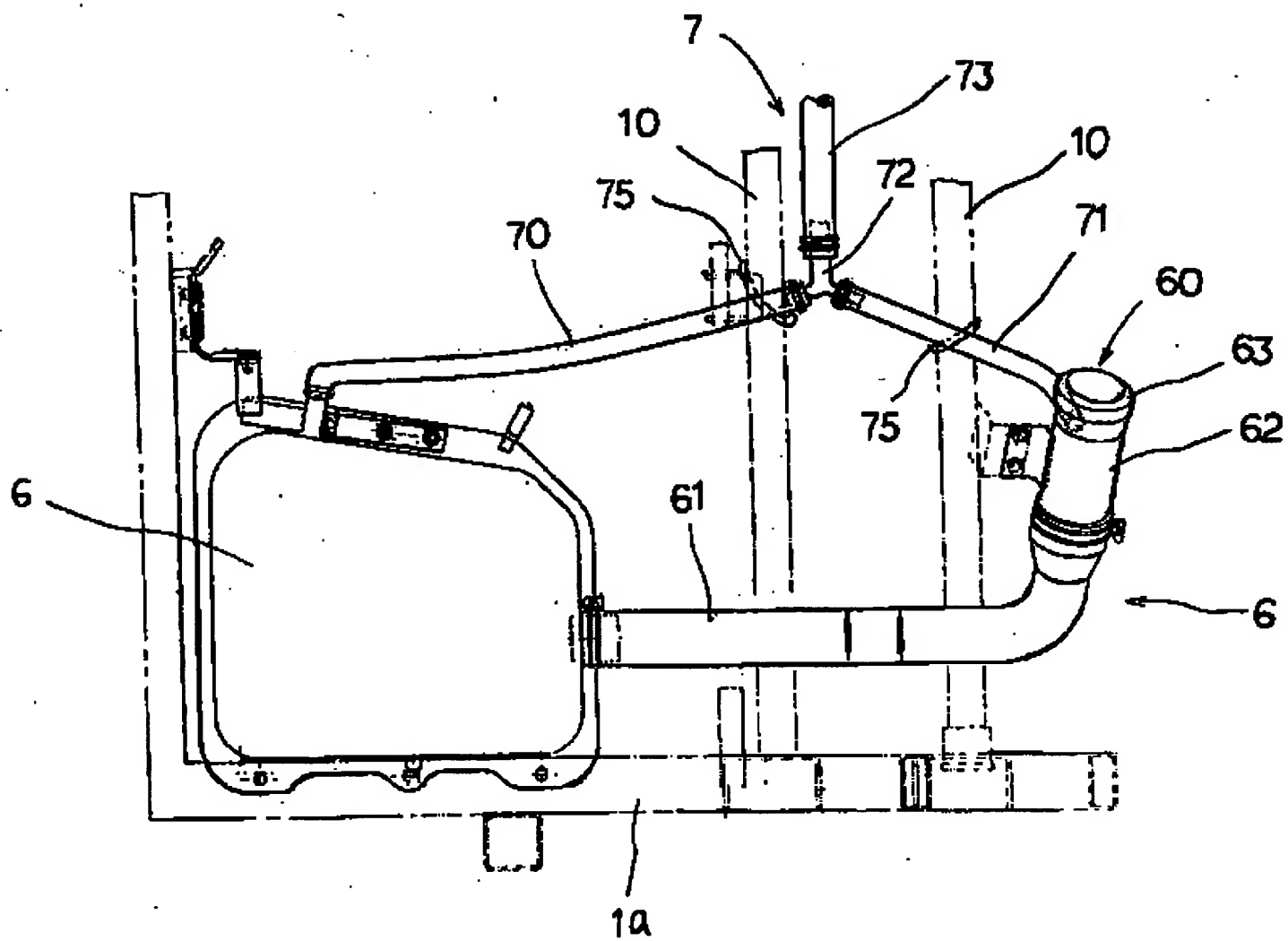
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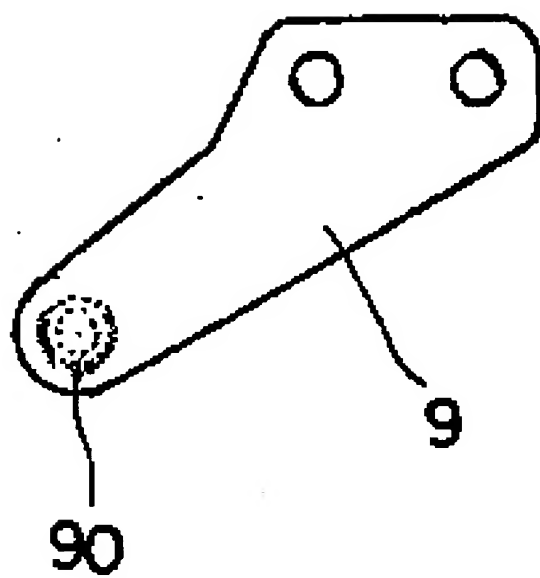








(A)



(B)

